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**DIGITAL MATURITY ASSESSMENT IN THE BANKING INDUSTRY IN THE  
REPUBLIC OF MACEDONIA**

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**Kalina Trenevska Blagoeva**

Ss. Cyril and Methodius University in Skopje, Faculty of Economics, Republic of Macedonia

[kalina@eccf.ukim.edu.mk](mailto:kalina@eccf.ukim.edu.mk)**Sasho Josimovski**

Ss. Cyril and Methodius University in Skopje, Faculty of Economics, Republic of Macedonia

[sasojos@eccf.ukim.edu.mk](mailto:sasojos@eccf.ukim.edu.mk)**Marina Mijoska**

Ss. Cyril and Methodius University in Skopje, Faculty of Economics, Republic of Macedonia

[marina@eccf.ukim.edu.mk](mailto:marina@eccf.ukim.edu.mk)**Dimitar Jovevski**

Ss. Cyril and Methodius University in Skopje, Faculty of Economics, Republic of Macedonia

[dimitar@eccf.ukim.edu.mk](mailto:dimitar@eccf.ukim.edu.mk)

**Abstract:** The main aim of this paper is to assess the level of the digital maturity of selected companies in the banking sector in the country using the digital maturity assessment tool. Since the concepts regarding digital transformation especially digital maturity are not uniquely defined in the literature, the process of the digital transformation of a company will be presented together with the assessment methodology of companies' digital maturity from the authors' point of view. Companies in all industries worldwide are experimenting with and benefiting from digital transformation. Digital maturity and digital transformation are interconnected. In order to reach certain level of digital maturity, digital transformation is a must. Digital transformation is the use of technology to radically improve performance of companies. Different authors and consulting groups propose digital transformation roadmaps in order to reach predefined digital maturity level. We will address the most influential methodologies. In order to assess the level of the digital maturity a structured survey was performed in the banking industry in the country. According the defined methodology the following five different pillars of digital maturity are evaluated: governance and leadership, people and culture, capacity and capability, innovation and technology. Each of the pillars can be assessed on the scale of five different levels starting from minimal, then informal and reactive, transitional, customer-driven and the final, most advanced level – transformed. Concerning the first pillar, governance and leadership, analysed banks are mostly in the level 3 and 4. This means that they have defined digital strategy which is integrated into departmental planning process and influences overall organisational strategy and direction. The maturity of the analysed sample for the second pillar – people and culture, is on level 3. This means that the digital strategy is developed and embraced by staff and in some cases digital transformation change management plan is implemented. After summarizing the results for the third pillar - capacity and capability, it can be concluded that the answers into the assessment tool are more dispersed and overall conclusion cannot be derived. Analysed banks are mostly between level 3 and 4 regarding innovation aspect meaning that digital channels are used to create new relationships with customers and the company seeks ways to utilise digital channels and technologies to redefine customer service and to generate new benefits. The last pillar which refers to the technology, shows the highest level of all pillars, i.e. mostly the analysed banks are between level 4 and 5. This is encouraging since the technology is enabler of digital transformation. The banking sector in the country is one of the most advanced service sectors and hence represent a benchmark concerning the digital transformation. The results of our survey confirmed that banking sector in the Republic of Macedonia fully understands the benefits of digital transformation and therefore strives to reach the highest level of digital maturity. Understanding where the companies are on the digital journey has a number of benefits including the prioritization of resources and projects that will help accelerate advancing along different levels of digital maturity.

**Keywords:** digital transformation, digital maturity, banking industry, Republic of Macedonia.

**INTRODUCTION – DIGITAL TRANSFORMATION AND DIGITAL MATURITY**

A digital strategy or plan is the articulation of an organisation's vision, goals and purpose for engaging with digital solutions and technologies (Corver and Elkhuisen, 2014). According to the Digital Transformation Toolkit Guide the strategy should focus on the opportunities and challenges of the digital activities of organizations, the governance, management and risk management issues. The digital strategy of a

company should address the questions why, what and how and what are the business benefits of digital initiatives to the organisation.

Most of the organizations don't have a clear digital strategy. Digital solutions are widely used to improve how organizations compete. As explained by Corver and Elkhuizen (2014) use cases that are industry-specific, cross-industry or process-specific can be used for digital opportunity ideation. The elements of the certain framework should be analysed to ensure full exploration of relevant digital opportunities and the ability to implement them to their full potential. What do traditional businesses do when employees have better digital solutions at home than they do at work, and customers are more technology savvy than the people trying to sell to them? That's why digital awareness is the precondition to start the journey (Westerman et.al, 2012).

An ICT strategy sets out the technical infrastructure that underpins an organisation's use of digital solutions and channels, a digital strategy states what is to be channelled through the technological infrastructure, how that is to be managed and why. As such, digital technology is a means, not a strategy (Solis and Szymanski, 2016). The two strategies can be developed together. The strategies can be combined, or they can be kept separate with references where appropriate to the other strategy. Relevant managerial question is who should develop the digital strategy. The digital strategy, and other elements of this toolkit should be researched, developed and sustained by an internal team of people representing the key areas of the organisation.

Digital maturity' is an aspirational target – something to reach for constantly that is always changing and improving (Newman, 2017). Digital maturity models are designed to help organizations to take a holistic approach to transformation. A digital maturity model is effective for a variety of purposes. Its very creation forces organizations to analyse and properly structure the problem to be addressed. It facilitates goals and plans, both short and longer term. It provides a basis to help organizations assess realistically where they are in their transformation programs. Digital maturity and digital transformation are interconnected. Digital transformation is the use of technology to radically improve performance or reach of enterprise (Westerman et.al, 2012). Transformation impacts the whole business, not only questioning existing ways of managing and structuring it, but also changing mind-sets of everyone in the organization. Digital transformation requires strong leadership to drive change. But it also requires a vision for what parts of the company you want to transform. Different authors and consulting groups propose digital transformation roadmaps in order to reach predefined digital maturity level. We will address the most influential methodologies.

According to the Adobe Digital Marketing Survey results for 2016 the companies are divided in four groups. The groups are: advanced companies (data mostly integrated, best practices generally followed, automation common, strong technical skills), focused companies (data and processes somewhat integrated, automation common, solid and expanding technical skills), emergent (basic data integration, some automation, growing technical capacity) and non-existent (limited data in silos, no automation, and low technical capacity). They mentioned that only 19% of North American organizations and 7% of European organizations rate their digital maturity as "Advanced." The Adobe Digital Marketing Survey is explaining the level of digital maturity mainly from the aspect of the marketing activities and four elements of data-driven marketing, customer experience, mobile, cross-channel marketing.

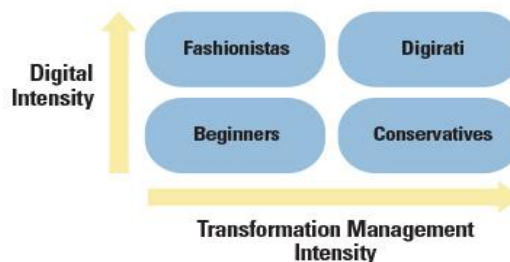
In Corver and Elkhuizen (2014) it is proven that for companies that use the newest digital solutions, namely social, mobile, analytics and cloud (SMAC), major benefits can quickly accrue. According to Corver and Elkhuizen (2014) digital transformation often begins with the customer, and then it extends to three additional areas: digitizing operations, products and services and organization. By analysing digital developments across several industries they have found common elements in all four of these areas that apply to most companies in both the B2C and B2B markets and have developed a framework for organizations to develop a digital transformation blueprint. Note that when an organization decides to use this digital framework, it should be introduced in a staged approach rather than all at once; therefore, it is vital to set priorities and identify the most important areas of focus. Digitizing the Customer Experience is the first step. Using CRM, companies can identify which products a particular customer has historically purchased; now, better analysis can be performed through the Internet. Corver and Elkhuizen (2014) call these digital footprints that consumers leave behind in their day-to-day online behaviour a Code Halo, or the digital field of information that accumulates not only around customers, but also around processes, organizations and devices. Based on information derived from social media, organizations can link certain consumer preferences to potential buying habits. Omni-channel communication and service is of the most importance. Digitizing products and services is the second element, namely companies are trying to sell an experience. Many products today both consume and generate data and are interconnected through the Web. Because of this increased intelligence, their usage can be monitored, additional services can be proactively offered. Digitizing Operations is the third element. Digital technology can improve business processes in several ways (the usage of SMAC). Digitizing the

organization means value chains increasingly integrated among businesses. Digital solutions can support value chain players to work more closely together. To work effectively within an integrated ecosystem, employees need to work together in a new way, breaking down silos and collaborating across different departments.

According to the worldwide survey performed by Westerman et.al, (2014) executives are digitally transforming three key areas of their enterprises: customer experience, operational processes and business models. And each of these three pillars has three different elements that are changing. These nine elements form a set of building blocks for digital transformation. The first element is customer experience with three building blocks: customer understanding, top-line growth and customer touch points. Customer understanding is fostered by social media, online communities, improved branding in lifestyle communities, analytics-based underwriting and pricing (dynamic pricing). Top-line growth is about usage of technology to enhance in-person sales conversations. Customer touch points are important to enhance customer service by, helping customers avoid going physically to a branch, leveraged an expert community, offering self-service via digital tools. However, multichannel services require envisioning and implementing change across customer experience and internal operational processes. Companies are also realizing very strong benefits from transforming internal processes through process digitization, worker enablement and performance management. Process digitization (automation) can enable companies to refocus their people on more strategic tasks. Worker enablement is about virtualization of individual-level work, by company’s collaboration and networking tools. Performance management is a tool to the digital transformation that is actually changing the process of strategic decision-making. The three areas of transformation of the business models are: digital modified businesses, the creation of new digital business and digital globalization. Companies are modifying business by digital offerings and digitally shared content across organizational silos or by building digital or service wrappers around traditional products. New digital business all about introduction of digital products that complement traditional products or by reshaping their boundaries through digital. Digital globalization is about globally shared services for finance, HR and even core capabilities like manufacturing and design and promotion, in order to promote efficiency and reduce risk.

One of the most interesting approaches to investigating digital maturity is the one of Westerman et.al. (2012). According to Westerman et.al., (2012) digital maturity is a point in the space of two interrelated factors - digital intensity (the level of investment in technology-enabled initiatives meant to change how the company operates) and the other is transformation management intensity (the level of investment in the leadership capabilities needed to create digital transformation within an organization). This concept combines transformation capabilities and includes management’s vision and governance to implement technology based change. Companies can have four levels of digital maturity: high digital and transformation management intensity, low digital and transformation management intensity, or a mix of the two.

Figure 1. Four Types of Digital Maturity



Source: G.Westerman, D.Bonnet and A.McAfee, *The Advantages of Digital Maturity*, 2012, available at: [sloanreview.mit.edu/article/the-advantages-of-digital-maturity/](http://sloanreview.mit.edu/article/the-advantages-of-digital-maturity/)

Digital Beginners are companies with low level of digital and transformation management intensity. These companies are not utilizing advanced capabilities, and they are there very rarely by choice – awareness and leadership is lacking. Digital Fashionistas are in the top left quadrant. These companies are using advanced digital applications, but without clear vision of gaining synergy, and very often without value creation and capture. Companies that have bad enterprise level governance and have not a clear digital transformation strategy are there, even if some units are more mature. Digital conservatives understand vision, corporate strategy and culture. Still, they don’t understand the value of the new digital technologies and may miss business opportunities. Digirati,

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companies in the top sight quadrant are the most advanced. They understand the new technologies and know how to use them. Their management develop a digital culture that can envision digital transformation. Companies that are mature on the digital intensity dimension are better at driving revenue through their existing assets. Concerning revenue per employee and fixed asset turnover, the Digital Fashionistas and Digirati groups outperform average industry performance by 6-9% (Westerman et.al. 2012). Enterprises that are mature in transformation management intensity are profitable. On average, Digital Conservatives and Digirati are 9% to 26% more profitable than their average industry competitors on a basket of measures, including EBIT margin and net profit margin (Westerman et.al. 2012). In every industry there are companies that are Digirati and those who strive to get there need top management commitment and time in order to get the benefits of digital transformation.

TM Forum's Digital Maturity Model (DMM) (Newman, 2017) is one of the industry-specific models. Having in mind that CSP's are leaders concerning change this model can be used as reference in many industry; that have high technological usage and intensity. Digital transformation is about operational efficiencies because by automating front facing business activities (customers, partners etc.), back-end processes and resources, better customer experience at lower cost can be provided. Customers' lifetime value can be extended creating more personalized propositions and new digital services (cloud, digital payments, IoT, media etc.) The degree to which this can be achieved will depend on how well CSPs reshape their operations so they can bundle connectivity and digital services in an integrated customer experience. The model consists of five categories, or dimensions, each of which contain sub dimensions representing different aspects digital maturity. TN Forum's DMM underlines that the advent of new businesses is an important reason for pursuing digital transformation.

In the TM Forum's Digital Maturity Model (DMM) (Newman, 2017) five broad categories are identified for companies to use to assess their digital maturity – Customer, Strategy, Technology, Operations and Culture. It is allowed any firm to choose one of five 'states' to assess its maturity level against 175 criteria in the five dimensions. The maturity level can be qualitative, or based on a percentage of maturity achieved. Five stages are the following: initiating, emerging, performing, advancing and leading.

#### **ASSEMENT OF THE DIGITAL MATURITY - THE CASE OF THE BANKING INDUSTRY IN THE REPUBLIC OF MACEDONIA**

Companies in all industries worldwide are experimenting with and benefiting from digital transformation. Service industries are recognized as leaders in digital transformation projects. The banking sector in the country is one of the most advanced service sectors and hence represent a benchmark concerning the digital transformation. Therefore it was selected for further analysis and methodology testing. As of 30 June 2016, the banking sector in the country comprises eighteen depository institutions, i.e. fifteen banks and three savings houses. The concentration of the banking sector remains high, since three of the commercial banks (largest banks) account for more than 60% of total assets in the banking system (www.nbrm.mk). The number of employees in the banking sector is continuously growing, simultaneously with the increased productivity and performance of banks, measured by the amount of the total assets divided by total number of employees i.e. assets per employee indicator. Therefore, our sample of six banks can be considered as very representative at the moment, having in mind that it comprises largest banks in the country.

According the defined methodology five different aspects of digital maturity are assessed. The first pillar is *governance and leadership*. It refers to the executive support, authorisation, and reporting processes and detailing of roles and responsibilities. The second one is *people and culture* meaning the organisation's culture, including customer-focus, innovation, risk appetite and attention to managing change – especially staff roles. The third one is *capacity and capability*. In the methodology it is defined as the ability to be digitally mature, including resources, staff numbers and skill sets, access to the right technology, training plan, supporting policies and procedures. The forth pillar is *innovation* representing the willingness and ability to imagine new services and products and new ways of service delivery as well as the level of proactivity and desire to assess and implement new technologies, business processes and modes of working. The last is *technology* referring to the suitability of the underlying technology platforms, programs and systems that support the other four pillars. All these pillars are defined through five levels of maturity: level 1 – *minimal*, level 2 - *informal and reactive*, level 3 - *transitional*, level 4 - *customer-driven* and level 5 – *transformed*. Higher level managers were approached and they were asked to thick different characteristics of different level that apply to their banks. Afterwards, average level was assessed by the research team.

Concerning the first pillar, governance and leadership, analysed banks are mostly in the level 3 and 4. This means that they have defined digital strategy which is integrated into departmental planning process and influences overall organisational strategy and direction. In these banks KPIs and benefits to the business and customers are

understood, monitored and reported on and drive all digital activity. These banks have clear roles and responsibilities for delivering the digital strategy which are well understood. They as well have strategic collaboration with other departments and sometimes create strategic digital partnerships with other departments within the bank. They are focussed on audiences and their needs and they follow emerging technologies. These banks are utilising multiple channels and provide seamless customer experience across all channels –digital and non-digital. They are characterised with pro-active engagement with customers across all digital channels. Generally, they understand the benefits of social media and drive social media activity

The maturity of the analysed sample for the second pillar – people and culture is on level 3. This means that the digital strategy is developed and embraced by staff and in some cases digital strategy is driving cultural change. Further, digital teams are embedded in organisational structure and in some cases staff is organised in teams around customers rather than the organisation's services and products. Staff as well, understand the benefits and opportunities of the digital strategy to them and customers and in some cases staff seek to redefine their roles and personal KPIs in line with the digital strategy and organisational KPIs. These banks mostly focus on customers and how digital can meet their needs, some cases, strong customer-focussed culture is adopted and continually improved. In the banks at this level of digital maturity, digital transformation change management plan is implemented. According to the methodology, the level of digital maturity for the third pillar - capacity and capability for the analysed sample, after summarizing the results, it can be concluded that the answers into the assessment tool are more dispersed meaning that there are banks at 2 and 3, 4

The next, fourth pillar is innovation. Analysed banks are mostly between level 3 and 4 regarding this aspect of the overall digital maturity. These banks have reviewed and prioritised all business practices and processes for conversion to digital channels. At this level, the potential for digital channels to create new ways of engaging with customers and delivering services is explored and digital projects formed and digital channels are used to create new relationships with customers. Further, customers' needs and expectations drive innovation in service delivery – new services, new products and new relationships. Experimentation is encouraged across all channels and new methods of developing digital services are employed that are appropriate to the dynamic nature of the web –e.g. agile and lean. As this pillar refers to the willingness and ability to imagine new services and products and new ways of service delivery as well as the level of proactivity and desire to assess and implement new technologies, business processes and modes of working, it shows that the banks in the sample are leaders in the innovation of products and services.

The last pillar which refers to the technology, shows the highest level of all other pillars, i.e. mostly the analysed banks are between level 4 and 5. This is encouraging since the technology is enabler of digital transformation. According to the methodology and the assessment tool, companies (in our case banks) which reach these levels have certain characteristics. Their IT team input ensures digital services are responsive to the customers' chosen devices and comply with accessibility standards, enhances the delivery of digital services and speed and ease of developing new digital services. The team provides proactive input into re-engineering business processes and IT systems are driven by the digital channels and customers' needs. The IT team is skilful in training and supporting other staff in their use of digital solutions, tools and devices and IT strategy and performance are entirely aligned to the organisational vision and strategy and on-going feedback and optimisation of IT processes and digital tools encouraged and applied. The average level of digital maturity having in mind levels of all the pillars can be assessed between 3 and 4, transitional and customer-driven.

## CONCLUSION

Assessment of the digital maturity level helps organizations to strategize and transform. There are different methodologies and blueprints that can assist companies in change processes that are omnipresent. The banking sector has one of the leading roles in the digital transformation and change. Therefore, in our research we interviewed manager of six biggest banks in the country. According their perceptions, the banks are progressing well. Namely, the overall level of digital maturity can be set between levels 3 and 4, or transitional and customer-driver. The lowest level is assessed in the pillars people and culture and innovation, which is the result mainly of the lower capacity of transformational management intensity. These types of research have their limitations since positive bias is expected. For further research comparative analysis with other industry can be performed to analyse similarities and specifics.

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